



Master thesis, diploma thesis, bachelor thesis

Development and evaluation of braiding concepts for multi-branched fiber-reinforced plastic (FRP) structures

Student (m/f/d) Mechanical engineering, lightweight construction, process engineering etc.

application deadline

Oct. 29, 2023

start

as of now

duration

4 – 6 month

workplace

Denkendorf

Job Description

The Institute for Textile and Fiber Technologies (ITFT) of Stuttgart University conducts research in the future-oriented field of lightweight structures with multi-material design to exploit synergy effects of different material components for use in civil engineering.

As part of a research project with partners from industry and research, an existing concept for the production of spatially branched braided structures for concrete-filled high load-bearing FRP truss structures is being further developed and extended.

The focus of this work is on the development of automatable braiding concepts for the production of spatially-branched FRP structures. According to the current state of the art, the production of such structures is not possible without manual intervention in the braiding process. The aim is to use the developed concepts to enable the production of braided fiber hulls for use in concrete-filled, high load-bearing FRP truss structures in a fully automated process on the one hand, and to advance the development of other branched lightweight structures on the other.

The interview as well as the later work will take place at our site at DITF Denkendorf.

Tasks

The work mainly includes the following points:

- Development of concepts for the production of multi-branched FRP structures by braiding process using different fiber materials
- Testing and validation of the developed braiding concepts
- Analysis of the concepts on the basis of an evaluation matrix, in particular with regard to feasibility, automatability and associated costs

Qualifications

- Interest and intrinsic motivation for fiber composite technologies in lightweight construction
- Independent and autonomous work
- Previous experience and craft skills in fiber composites preferred

The University of Stuttgart emphasizes the compatibility of private life, family and career as well as equal opportunities for persons of all genders. Disabled individuals are given preference in the case of equal suitability.

Contact

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